ART. XII.—*Pulsating Tumour of Orbit resembling true Aneurism; Ligation of Common Carotid; subsequent Removal of Tumour; Recovery.* By G. E. FROTHINGHAM, M.D., Professor of Ophthalmology, University of Michigan. (With two wood-cuts.)

IN March, 1872, I was called to see Mrs. J. B., æt. 35 years, residing in Chelsea, Michigan, and suffering from exophthalmia of left eye. The history of the case was briefly as follows: Three years before I was called, she had noticed a slight protrusion of the eye. As it was not attended with any pain or serious discomfort at first, she did not consult a physician. The prominence of the eye gradually becoming more marked, she consulted at different times several surgeons, but did not remember what diagnosis was made by any of them. At the time I saw her the eye was very much protruded, and moved perceptibly with each pulsation. Upon applying the ear over the temple or eye, a loud bruit, just such as is heard in aneurism, was detected; and with a stethoscope the bruit was all the more distinct and characteristic. Upon compressing the common carotid the bruit ceased, and the eye could be made to recede in the socket, but not to its normal position. Upon pressing the finger in at the outer angle of the orbit, at a point where the tumour showed slightly, it could be felt as a soft, elastic, pulsating tumour, just like a true aneurism with a thin sac.

There was no dilatation of the pupil. The sight in the protruding eye, though much diminished, was sufficient to distinguish readily the features of persons several feet distant, when the lid was raised so as to uncover the pupil. In the usual position the cornea was completely covered by the upper lid, which was much thinned, and overlapped the eye. After a careful examination I diagnosed true aneurism of the orbit, although the insidious approach and slow growth of the tumour pointed to aneurism by anastomosis, or some form of pulsating tumour.

Later in the month she was examined by Prof. T. A. McGraw, then occupying the chair of surgery in this University. After a thorough examination he also diagnosed true aneurism.

After having tried compression without success, I advised ligation of the common carotid. The patient at first objected, but after a few weeks, the tumour increasing rapidly, and great discomfort being experienced from the noise in the head, she consented to the operation, which I performed on the 29th of May, 1872, assisted by Dr. F. K. Owen, of Ypsilanti, and Drs. Gates and Ackley, of Chelsea.

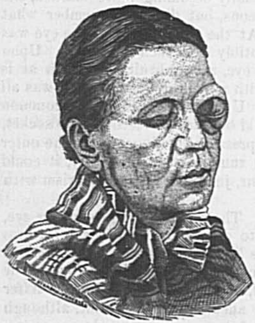
The effect of the operation was immediate cessation of the bruit and pulsation in the tumour, which diminished considerably in size, the eye receding to a corresponding extent. The pulsation ceased for fourteen days. It then began to return, but not with any considerable force, and not to the extent of producing any noise or uncomfortable sensation that disturbed the patient.

The ligature came away on the eighteenth day, and the patient recovered slowly from the effect of the operation, suffering from giddiness and other cerebral symptoms for several weeks afterward.

Although the pulsation returned in the tumour, the ligation of the artery had the effect of retarding its growth, so that the symptoms did not again become urgent until the latter part of August, 1875. The patient visited me several times in the interval between the ligation of the artery and the date above mentioned, and was examined in my presence by several surgeons, all of whom declared the pulsation and bruit to be like that of true aneurism. Among those who thus examined the patient was my colleague, Prof. Maclean, who, as a private pupil of the late Prof. Syme, had early been made familiar with all forms of aneurism, and whose practice since his graduation, chiefly surgical, had kept his ear trained to the nicest distinctions.

The exophthalmia increasing quite rapidly, the patient again consulted me in the latter part of September, 1875, and, upon examination, I found that the tumour had considerably increased, the eye presenting the appearance shown in Fig. 1, copied from a photograph taken at that time. The tumour had now projected so far beyond the lower margin of the orbit that it could be more thoroughly examined, and, although it was very elastic, and became greatly reduced in size by pressure, I became satisfied that it was not a true aneurism, but one of those vascular tumours commonly known as "aneurism by anastomosis."

Fig. 1.



The eyeball was almost completely covered by the upper lid, which was much thinned and expanded, so as to cover the eye like a hood; whenever it was raised it had to be held forward, or it would slide completely back and leave the whole eyeball uncovered. The vision in the eye was sufficient to enable the patient to count fingers at about six feet distance.

I advised at this time the removal of the tumour, feeling confident that it could be safely performed. The patient, feeling very anxious to be relieved, readily consented; but as the weather then was very warm, desired to postpone the operation until it was cooler. To this I consented, and the patient left for home. For some reason she did not again return till November. The tumour had not materially changed in appearance from that presented at the examination in September. On the 3d of November, assisted by my colleagues, Profs. Maclean and Herdman, I proceeded to perform the operation, having made preparation for any modification that might be called for by the condition of the tumour, that might be ascertained after a more thorough exploration, which could be made after enucleation of the eyeball.

The patient having been chloroformed, an exploring trocar and canula was plunged into the tumour; and upon withdrawing the trocar the blood flowed in regular jets in a stream the full size of the canula. The eye was now enucleated, and, on pressing the finger well back, the posterior portion of the tumour could be felt. It was thus ascertained that the tumour lay wholly within the orbit, and was fed by large vessels entering through the spheno-maxillary fissure, which was so much enlarged that the finger

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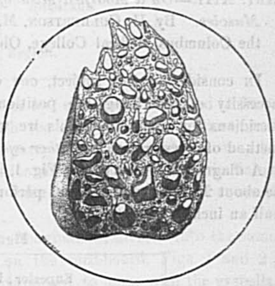
could be readily passed into it, and by thus exercising pressure on the vessels all pulsation in the tumour could be stopped.

The tumour was now rapidly enucleated, the pedicle cut with the curved scissors, an assistant being ready to compress the vessels at once. The hemorrhage, as expected, was very profuse, filling the orbital cavity and flowing in a large stream down the cheek in the brief time required for the assistant to pass his finger into the fissure and compress the vessels. A compress moistened with a solution of Monsel's styptic was now pressed down upon the bleeding vessels, the orbit tamponed, and the patient placed in bed. Some fever and headache followed the operation, but the recovery was rapid, the patient returning home on the 17th of November, and soon the recovery was complete.

The tumour, upon examination, was found to consist of two portions. There was a more dense portion and on the inner and upper side a large mass of convoluted and sacculated vessels, held together by connective tissue, and loosely connected by the same tissue to the more solid portion of the tumour.

Fig. 2.



This more solid portion differed from the other simply in having a greater quantity of connective tissue, which was also more dense in its character. It was permeated freely by bloodvessels, and in structure appeared much like a sponge. A thick slice allowed the light to shine through, revealing cavities of irregular form and size, with which the bloodvessels freely communicated. A careful microscopic examination showed it to be composed of bloodvessels and condensed connective tissue. Fig. 2 represents the appearance presented by a section of the tumour, made after eight months, the tumour being much shrunken by the action of the alcohol in which it was preserved.

This case is of interest as illustrating the difficulty attending the diagnosis between aneurism and other pulsating tumours situated in the cavity of the orbit.

This was, perhaps, more strikingly illustrated by the case in which Bowman ligated the common carotid for a supposed aneurism of the orbit, but which proved to be neither an aneurism nor vascular tumour of any kind. In his case the diagnosis of aneurism was concurred in by several eminent and experienced medical gentlemen, no one doubting the existence of aneurism. But the patient dying from the effect of the ligation, a post-mortem showed that no aneurism existed anywhere in the cranium or orbit, nor was there any vascular disease within the orbit. The only condition that could be found to explain the exophthalmia, bruit, and pulsation, was inflammation of the cavernous sinus and occlusion of the ophthalmic vein where it entered that sinus. The swollen walls of the sinus, by partially

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compressing the internal carotid, probably gave rise to the bruit, and the occlusion of the vein, by preventing the free return of venous blood, probably gave rise to the pulsation of the eyeball, and its protrusion from the orbit.

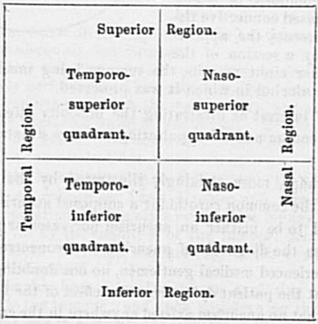
Perhaps the tendency at the present is too strongly inclined to regard *all* deep-seated pulsating tumours of the orbit as true aneurism, and I report this case chiefly to add to the statistics of this class of tumours, for I am fully convinced that, until a more thorough and extensive study of the subject shall develop more accurate diagnostic distinctions than are at present known, mistakes in diagnosticating these tumours must occasionally happen.

ART. XIII.—*On a Modified Mode of detecting Paralysis of the Ocular Muscles.* By H. CULBERTSON, M.D., Professor of Ophthalmology in the Columbus Medical College, Ohio.

IN considering this subject, one of the sources of confusion is the necessity of describing the position of the false images and of the meridians for *each eye.* This we would avoid by adopting a uniform method of investigation for *either eye*, and which is as follows:—

A diagram like that below, Fig. 1, is drawn on card-board, which should be about 21 inches square and perforated with an opening in the centre, half an inch in diameter.

Fig. 1.



This diagram is intended to be viewed when inspecting the *left eye.*

When examining the *right eye* the lateral regions will be reversed. (See Fig. 2.)

These diagrams may be made on opposite sides of the same card-board,